ing that thyroid hormone administration is beneficial to patients with thyroid cancer by suppression of thyrotropin and its stimulatory effect on the cancer. His, I believe, is one of the first surgical articles to recognize this fact. The fact, however, is implicit in the practice of inducing hypothyroidism in order to stimulate the tumor to accumulate radioactive iodine. With this important recognition it may be time to call for some well-planned studies to learn what will benefit patients the most. For example, a collaborative study of a large group of patients is needed to test possible benefits of thyroid hormone prophylaxis of cancer, as compared with groups treated in more conventional ways, such as outlined by Dr. Clark. A call should go out for research funds to study means of predicting the biological behavior of thyroid tumors.

Some 33 years ago I wrote a brief article noting that although the incidence of diagnosed thyroid cancer was as high as 30 percent in thyroid nodules, thyroid cancer was a relatively rare cause of death.[3] The estimate of 1,150 deaths from thyroid cancer for 1976 speaks to this point. In the years since 1947, I have carried my full burden in trying to make death a little easier for patients with thyroid cancer—one with anaplastic cancer, another with a long-standing "simple goiter" that metastasized to lung and bone, and several with papillary and alveolar carcinoma. The earliest death was at age 52, the others occurred between ages 75 and 85. I also cared for patients with thyroid cancer burdened with bilateral vocal cord paralysis, severed spinal accessory nerve (unrecognized shoulder paralysis) or persistent facial edema after neck dissection, and a substantial number of permanently hypoparathyroid patients. During all of this, I was seeing referred patients in an institution that had no surgical services.

From these experiences, I must conclude that Dr. Clark has presented his case well. At the same time, I feel that greater selectivity must go into determining appropriate treatment for the many patients with thyroid nodules and for those with histories of irradiation. Having advised a substantial number of patients conservatively over many years, while my hair has grown white ("Patients," I used to say, "don't consult me to spare my hair from turning grey"), I am able to record that this far into my career I have had no one return to say that he or she wished I had advised a more aggressive approach. I shall continue to rely mainly on increased growth despite administration of thyroid hormone, as the primary criterion of danger in thyroid nodules.

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Accountability for Performance

SANAZARO'S SPECIAL ARTICLE which appears elsewhere in this issue foreshadows a new era of physician accountability for professional performance in patient care. In days gone by, when there was more caring than curing in medical practice and the precept was to do no harm, it was sufficient for a physician to be accountable to his or her own conscience. The risks and benefits of medical interventions were relatively small, except perhaps in surgery. The risks were accepted by patients as a matter of course and the benefits when they occurred were greatly appreciated. But this was before medicine became more scientific and began to develop measurable data usable in day-to-day patient care. As this latter has occurred patient care has moved much more into the scientific and also the public domain, and professional accountability for practicing physicians has taken on new dimensions.

Perhaps because both risks and benefits can be dramatic in surgery, the earlier efforts at accountability for professional performance must be credited to surgeons, who limited privileges in operating rooms to match performance capability and monitored results through tissue committees and morbidity and mortality outcomes. But in recent years the risks and benefits in nonsurgical or medical patient care have become much greater because medical science and medical technology know more and can do more, with greater benefit though often at greater risk. So it is now becoming necessary to develop better accountability for all aspects of patient care, whether medical or surgical.

As medicine itself becomes more scientific, patient care becomes more scientific; or, to put it

another way, as medicine becomes more scientific a more scientific approach to medical practice will be needed. In his paper, Sanazaro suggests three important points which are linked. The data base for a physician's practice performance is to be found in the patient care record, whether in office or hospital. Professional accountability, like fiscal accountability, depends upon adequate data and adequate records which can be reviewed and studied. Another point is that comparisons of practice data, whether among physicians, hospitals or regions may emerge as useful indicators of performance. And then he suggests (as he did at a recent California Medical Association conference) that some system of "performance assessment credits" be established to recognize and reward physicians who develop and study their own practice data and participate in objective measurement of their personal practice performance.

The idea of accountability for professional performance is one whose time has about come. It should be welcomed by all physicians in the interest of more scientific, more accountable and therefore better patient care.

—MSMW

Myocardial Perfusion Scintigraphy

ELSEWHERE IN THIS ISSUE, Dr. James McKillop presents an in-depth analysis of the history, technique and clinical applications of myocardial perfusion scintigraphy. As Dr. McKillop notes, perfusion scintigraphy using thallium 201 has been widely investigated and applied to the evaluation of clinical problems. When the main clinical question involves the diagnosis of coronary disease, stress perfusion scintigraphy followed by redistribution imaging has been shown by numerous studies to be more sensitive than stress electrocardiography, and probably more specific as well.[1] Although redistribution examination may lead to an overdiagnosis of infarction, this method presents a definite advantage over rest imaging in saving time and expense, and in reducing patients' exposure to radiation. If it is critical to establish the presence and extent of previous infarction in a patient without a history of such an event, but for whom abnormal results on redistribution imaging persist, a later rest image may be carried out for clarification.

Although stress perfusion scintigraphy frequently underestimates the degree of vascular involvement, it appears to be sensitive for the diagnosis of coronary disease in patients with triple-vessel involvement. It also complements stress electrocardiograms for identifying the high-risk lesions of triple-vessel and left main coronary artery disease.[2] However, it is important not to confuse the extent of coronary disease with the extent of stress-induced ischemia. While coronary angiography provides an anatomic measure of the extent of coronary vascular involvement, perfusion scintigraphy provides a physiological marker for the extent of ischemia and infarction.

Perfusion scintigraphy is a relative technique, providing a regional indication of blood flow in various areas of the myocardium, and does not provide an absolute marker of perfusion. There is no reason to believe that in patients with multiple-vessel coronary disease, stress-induced ischemia will develop in all myocardial regions at risk. More likely, ischemia will be manifest in the most underperfused region depending on the degree of narrowing of the supplying coronary vessel, modified by the effects of collateral perfusion and the level of stress achieved. These factors likely explain some of the discrepancies between the physiological findings on perfusion scintigraphy and the anatomic findings on angiography. Similarly, stress perfusion scintigraphy carried out in patients following coronary artery bypass graft operations does not simply reflect the state of graft patency, but the combination of graft status, the state of the native vasculature and the contribution of collaterals.[3]

As a noninvasive indicator of myocardial perfusion, thallium 201 scintigraphy provides clinicians with a unique tool to assess and monitor the pathological effect of anatomic coronary stenoses or other factors which may prejudice myocardial perfusion. It is not surprising, then, that transient coronary spasm may produce scintigraphic abnormalities. Likewise, in the hypertrophied myocardium of patients with tight aortic stenosis, ischemia can also develop in the presence of stress. Under these conditions a patient may have positive ECG and scintigraphic changes in the absence of narrowing of coronary vessels. However, such scintigraphic abnormalities should not be classified as false-positive results; they are likely related to true ischemic manifestations in the absence of coronary artery disease. A recent study[4] and several cases in our own experience